

CLAIMS

What is claimed is:

1. A method for discovering and configuring network devices into a cluster,
5 comprising the steps of:
 detecting discovery packets from candidate devices;
 applying qualification rules to said discovery packets received from said
candidate devices to determine whether any of said candidate devices is qualified to
join said cluster, and;
10 adding one or more said candidate devices to said cluster.
2. The method according to claim 1, wherein at least one of said network
devices is a LAN switch.
- 15 3. The method according to claim 1, wherein each said candidate device is
qualified to join said cluster only if said candidate device is not currently a
member of another cluster.

4. A method of logically configuring network devices into a cluster, comprising the steps of:

receiving at a first network device one or more packets containing information indicating that a second network device is capable of belonging to

5 said cluster;

storing said information within said first network device, and;

linking said information into a neighbor network device database in said first network device.

10 5. The method according to claim 4, wherein said first network device is a LAN switch.

6. The method according to claim 4, wherein said first network device and said second network device are LAN switches.

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7. The method according to claim 4, further comprising the step of adding said second network device to a cluster of network devices which may be managed and configured via said first network device.

8. The method according to claim 7, wherein said first network device is a LAN switch.

9. The method according to claim 8, wherein said first network device and
5 said second network device are LAN switches.

10. The method according to claim 4, further comprising the step of adding
said second network device to a cluster of network devices which may be
managed and configured via said first network device only if said second
10 network device is not currently a member of a different cluster.

11. The method according to claim 10, wherein said first network device is a LAN switch.

15 12. The method according to claim 10, wherein said first network device and
said second network device are LAN switches.

13. A method for configuring a plurality of network devices into a single cluster
capable of being managed via one of said network devices, comprising the steps of:

receiving a command designating one of said network devices as the cluster commander device;

receiving a command designating the remaining network devices as candidate devices;

5 receiving discovery packets at said cluster commander device from each said candidate device;

applying a set of qualification rules to determine whether each said candidate device is qualified to join said cluster and;

presenting a list of said candidate devices qualified to join said cluster to a user.

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14. The method of claim 13, further comprising the steps of:

receiving a command at said cluster commander device to add one of said candidate devices to said cluster;

determining whether the number of network devices in said cluster has reached a

15 maximum value, and;

adding said candidate device to said cluster if said maximum value has not been reached.

15. The method according to claim 13, wherein said cluster commander device is a LAN switch.

16. The method according to claim 13, wherein said cluster commander device
5 and said candidate devices are LAN switches.

17. The method according to claim 14, wherein said cluster commander device is a LAN switch.

10 18. The method according to claim 14, wherein said cluster commander device and said candidate devices are LAN switches.

19. An apparatus for discovering and configuring network devices into a cluster, comprising:

15 means for detecting discovery packets from candidate devices;

means for applying qualification rules to said discovery packets received from said candidate devices to determine whether any of said candidate devices is qualified to join said cluster, and;

means for adding one or more said candidate devices to said cluster.

20. The apparatus according to claim 19, wherein at least one of said network devices is a LAN switch.

5 21. The apparatus according to claim 19, wherein each said candidate device is qualified to join said cluster only if said candidate device is not currently a member of another cluster.

22. An apparatus of logically configuring network devices into a cluster,
10 comprising:

means for receiving at a first network device one or more packets containing information indicating that a second network device is capable of belonging to said cluster;

means for storing said information within said first network device, and;

15 means for linking said information into a neighbor network device database in said first network device.

23. The apparatus according to claim 22, wherein said first network device is a LAN switch.

24. The apparatus according to claim 22, wherein said first network device and said second network device are LAN switches.

5 25. The apparatus according to claim 22, further comprising means for adding said second network device to a cluster of network devices which may be managed and configured via said first network device.

26. The apparatus according to claim 25, wherein said first network device is a
10 LAN switch.

27. The apparatus according to claim 25, wherein said first network device and said second network device are LAN switches.

15 28. The apparatus according to claim 22, further comprising means for adding said second network device to a cluster of network devices which may be managed and configured via said first network device only if said second network device is not currently a member of a different cluster.

29. The apparatus according to claim 28, wherein said first network device is a LAN switch.

30. The apparatus according to claim 28, wherein said first network device and
5 said second network device are LAN switches.

31. An apparatus for configuring a plurality of network devices into a single cluster capable of being managed via one of said network devices, comprising:

means for receiving a command designating one of said network devices as the
10 cluster commander device;

means for receiving a command designating the remaining network devices as candidate devices;

means for receiving discovery packets at said cluster commander device from each said candidate device;

15 means for applying a set of qualification rules to determine whether each said candidate device is qualified to join said cluster and;

means for presenting a list of said candidate devices qualified to join said cluster to a user.

32. The apparatus of claim 31, further comprising:

means for receiving a command at said cluster commander device to add one of said candidate devices to said cluster;

means for determining whether the number of network devices in said cluster has reached a maximum value, and;

means for adding said candidate device to said cluster if said maximum value has not been reached.

33. The apparatus according to claim 31, wherein said cluster commander device is a LAN switch.

34. The apparatus according to claim 31, wherein said cluster commander device and said candidate devices are LAN switches.

35. The apparatus according to claim 32, wherein said cluster commander device is a LAN switch.

36. The apparatus according to claim 32, wherein said cluster commander device and said candidate devices are LAN switches.

37. An apparatus for discovering and configuring network devices into a cluster, comprising:

discovery protocol logic for detecting discovery packets from candidate devices;

5 qualification rule circuitry for determining whether any of said candidate devices is qualified to join said cluster, and;

cluster management logic for adding one or more said candidate devices to said cluster.

10 38. The apparatus according to claim 37, wherein at least one of said network devices is a LAN switch.

39. The apparatus according to claim 37, wherein each said candidate device is qualified to join said cluster only if said candidate device is not currently a
15 member of another cluster.

40. An apparatus of logically configuring network devices into a cluster, comprising:

discovery protocol logic for receiving at a first network device one or more packets containing information indicating that a second network device is capable of belonging to said cluster;

memory storage for storing said information within said first network
5 device, and;

database linking logic for linking said information into a neighbor network device database in said first network device.

41. The apparatus according to claim 40, wherein said first network device is a
10 LAN switch.

42. The apparatus according to claim 40, wherein said first network device and said second network device are LAN switches.

15 43. The apparatus according to claim 40, further comprising circuitry for adding said second network device to a cluster of network devices which may be managed and configured via said first network device.

44. The apparatus according to claim 43, wherein said first network device is a LAN switch.

45. The apparatus according to claim 43, wherein said first network device and
5 said second network device are LAN switches.

46. The apparatus according to claim 40, further comprising circuitry for adding said second network device to a cluster of network devices which may be managed and configured via said first network device only if said second
10 network device is not currently a member of a different cluster.

47. The apparatus according to claim 46, wherein said first network device is a LAN switch.

15 48. The apparatus according to claim 46, wherein said first network device and said second network device are LAN switches.

49. An apparatus for configuring a plurality of network devices into a single cluster capable of being managed via one of said network devices, comprising:

logic for designating one of said network devices as the cluster commander device;

logic for designating the remaining network devices as candidate devices;

5 logic for receiving discovery packets at said cluster commander device from each said candidate device;

qualification rules for determining whether each said candidate device is qualified to join said cluster and;

logic for generating a list of said candidate switches qualified to join said cluster for display to a user.

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50. The apparatus of claim 49, further comprising:

a user interface for receiving a command at said cluster commander device to add one of said candidate devices to said cluster;

15 logic for determining whether the number of network devices in said cluster has reached a maximum value, and;

circuitry for adding said candidate device to said cluster if said maximum value has not been reached.

51. The apparatus according to claim 49, wherein said cluster commander device is a LAN switch.

52. The apparatus according to claim 49, wherein said cluster commander
5 device and said candidate devices are LAN switches.

53. The apparatus according to claim 50, wherein said cluster commander device is a LAN switch.

10 54. The apparatus according to claim 50, wherein said cluster commander device and said candidate devices are LAN switches.

55. A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method for discovering and
15 configuring network devices into a cluster, the method comprising the steps of:

detecting discovery packets from candidate devices;

applying qualification rules to said discovery packets received from said candidate devices to determine whether any of said candidate devices is qualified to join said cluster, and;

adding one or more said candidate devices to said cluster.

56. A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method of logically configuring
- 5 network devices into a cluster, the method comprising the steps of:
- receiving at a first network device one or more packets containing information indicating that a second network device is capable of belonging to said cluster;
- storing said information within said first network device, and;
- 10 linking said information into a neighbor network device database in said first network device.

57. A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method for configuring a
- 15 plurality of network devices into a single cluster capable of being managed via one of said network devices, the method comprising the steps of:
- receiving a command designating one of said network devices as the cluster commander device;

receiving a command designating the remaining network devices as candidate devices;

receiving discovery packets at said cluster commander device from each said candidate device;

5 applying a set of qualification rules to determine whether each said candidate device is qualified to join said cluster and;

presenting a list of said candidate devices qualified to join said cluster to a user.